**MAKERERE UNIVERSITY BUSINESS SCHOOL**

**FACULTY OF VOCATIONAL AND DISTANCE LEARNING**

**DEPARTMENT OF INFORMATION SYSTEM**

**COURSE WORK TWO TEST FOR DIPLOMA IN COMPUTER SCIENCE**

**ACADEMIC YEAR 2024/2025**

COURSE NAME:COMPUTER PROGRAMMING II

COURSE CODE: DCS 2106

SEMESTER: ONE

YEAR OF STUDY: TWO

**Program Overview**

We designed a program to do the following:

* Greet the user: Here we ask the user for their name and then greet them with a welcome message
* Calculate birth year: We ask the user for his/her birth year to calculate their age using the birth year they have given us
* Ask for favourite number and check whether it is even or odd: We ask the user to enter their favourite number between 1 and 20.
* Conditional response based on his input: we display a message to the user telling them whether their favourite number is even/odd and whether it is less or greater than 10
* Implement a Book class: We defined a Book class with attributes for title, author, and year of publication.
* Sort books by year\_published: We created a function to sort a list of Book objects by their year\_publication.
* Use of For and While loops to display book information: Use for and while loops to display book details.
* Search for books: We created a While True loop to allow a user search for a book name in the book instances we created

**Code Structure and Explanation**

Part A: Basic Python

* Variable declaration: We declare Variables name, age and birth\_year to collect user input in order to have a welcome message and calculate their birth year using the age they input.
* Error handling: We use a try-except block to handle unexpected errors from the user in terms of data type used when inputting data. Ie Strings and integers in the wrong fields.

Part B: Conditional Execution

* Error handling: We still use the try-except block to handle unexpected errors when the user uses a wrong data type in the field
* Conditional statements: We use the if, else, and elif statements to make decisions based on the user's favourite number and determine whether it is odd/even and whether it is less, equals to or greater than 10.

Part C: Functions and Classes

* Class definition: We defined the Book class with attributes (title, author, year\_published) and a method (BookValue)to describe the Book Class.
* Function definition: We created a function called books\_sorted to organise a list of books sorted by the year\_published.

Part D: Iteration Techniques

* for loop: We use the for loop to list the book details.
* while loop: We also use the while loop to list the book details.